Log No. 125 TAG Rev 2 07/09/21

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

Code Section # C405.2

Brief Description:

Proposes to increase the pole height and decrease the lamp wattage for luminaires requiring activity sensor control. Also, clarify that both controls are applicable to parking lot.

Proposed code change text: (Copy the existing text from the Integrated Draft, linked above, and then use underline for new text and ~~strikeout~~ for text to be deleted.)

C405.2.7.3 Lighting setback. Lighting that is not controlled in accordance with Section C405.2.7.2 shall comply with ~~all of~~ the following:

1. Luminaires serving outdoor parking areas and having a rated input wattage of greater than 40 watts and a mounting height of 24 ~~30~~ feet (7315 mm) or less above the ground shall also be controlled so that the total wattage of such lighting is automatically reduced by not less than 50 percent where activity has not been detected for 15 minutes or more. Not more than 1,500 watts of lighting power shall be controlled together.

~~1.~~2. All other lighting shall be controlled so that the total wattage of such lighting is automatically reduced by not less than 50 percent by selectively switching off or dimming luminaires at one of the following times:

   1.1. From not later than 12 midnight to 6 a.m.

   1.2. From not later than one hour after business closing to not earlier than one hour before business opening.

   1.3. During any period when no activity has been detected for 15 minutes or more.

~~2. Luminaires serving outdoor parking areas and having a rated input wattage of greater than 78 40 watts and a mounting height of 24 30 feet (7315 mm) or less above the ground shall also be controlled so that the total wattage of such lighting is automatically reduced by not less than 50 percent during any tie where activity has not been detected for 15 minutes or more. Not more than 1,500 watts of lighting power shall be controlled together.~~

Purpose of code change:

Achieve energy savings from advanced lighting control. Current language has little impact as most luminaires mounted under 24 feet have less than 78 watts. This will result in greater applicability of this measure that has shown good potential.

Your amendment must meet one of the following criteria. Select at least one:

☐ Addresses a critical life/safety need.

☐ The amendment clarifies the intent or application of the code.

☒ Addresses a specific state policy or statute.
(Note that energy conservation is a state policy)

☐ Consistency with state or federal regulations.

☐ Addresses a unique character of the state.

☐ Corrects errors and omissions.

Check the building types that would be impacted by your code change:

☐ Single family/duplex/townhome ☒ Multi-family 4 + stories ☒ Institutional

☐ Multi-family 1 – 3 stories ☒ Commercial / Retail ☐ Industrial

Your name	Mike Kennedy	Email address	mikekennedy@energysims.com
Your organization	Mike Kennedy, Inc	Phone number	3603010098

Other contact name Click here to enter text.

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@des.wa.gov. For further information, call the State Building Code Council at 360-407-9278.

Economic Impact Data Sheet

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants and businesses.

Increase construction cost, reduce electric bill, extend lamp life.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal? (See OFM Life Cycle Cost **Analysis tool** and **Instructions;** use these **Inputs**. **Webinars on the tool can be found Here and Here**)

We need to establish the minimum wattage at which activity sensors are cost effective so need a cost for the activity sensor and an savings number for the controlled lamp. Cost and savings are estimated from the Nonresidential Outdoor Lighting Controls - Final Report from the California Codes and Standards Enhancement (CASE) Initiative. The reduction of this threshold was evaluated for title 24. Online at: https://t24stakeholder.wpengine.com/wp-content/uploads/2017/09/2019-T24-CASE-Report_Outdoor-Ltg-Controls_Final_September-2017.pdf.

Section 5.3.2 found an incremental cost of the activity sensor control of $59. This cost data is from 2017. An 11.4% inflation factor was used to adjust the cost to year end 2021 and 10% sales tax results was added for a total cost of $72.30

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal?

Table 16 of the Title 24 CASE report determines that a parking lot fixture with combined activity sensor - time clock midnight -6 50% off control has 2198 full load hours of operation. The WSEC base case is a timeclock control reducing light from midnight to 6 am by 50%. The full load hours were estimated at 3285 full load hours. (6pm to midnight at 100%, midnight to 6 - 50% reduction). This results in a delta hours of operation of 1087. The Title 24 full load hours estimate does not seem to account for any activity during the 6 – midnight window. For another measure Table 8 establishes an average occupancy signal for 26% of the hours for 804 delta operating full load hours.

OFM Calculator Summary at lowest wattage.

Life Cycle Cost Analysis	BEST		
Alternative	Baseline	Alt. 1	Alt. 2
Energy Use Intenstity (kBtu/sq.ft)	#DIV/0!	#DIV/0!	#DIV/0!
1st Construction Costs	$ -	$ 72	$ -
PV of Capital Costs	$ -	$ 178	$ -
PV of Maintenance Costs	$ -	$ -	$ -
PV of Utility Costs	$ 592	$ 447	$ 592
Total Life Cycle Cost (LCC)	**$ 592**	**$ 626**	**$ 592**
Net Present Savings (NPS)	**N/A**	**$ (34)**	**$ -**

Societal LCC takes into consideration the social cost of carbon dioxide emissions caused by operational energy consumption

(GHG) Social Life Cycle Cost		BEST	
GHG Impact from Utility Consumption	Baseline	Alt. 1	Alt. 2
Tons of CO2e over Study Period	4	3	4
% CO2e Reduction vs. Baseline	N/A	24%	0%
Present Social Cost of Carbon (SCC)	$ 232	$ 175	$ 232
Total LCC with SCC	**$ 824**	**$ 801**	**$ 824**
NPS with SCC	**N/A**	**$ 23**	**$ -**

List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

No additional time.

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.